REMARKS

Claims l-81 are pending in the case. In the Office Action mailed August 25, 2004, the Examiner took the following action: (1) rejected claims 78-81 under 35 USC § 112, second paragraph, as being indefinite; (2) rejected claims 1-11, 33-44, and 66-75 under 35 USC § 102(b) as being anticipated by McKown et al. (U.S. 3,912,197), Rampolla et al (U.S. 4,153,224), and Krammer et al. (U.S. 4,406,430); (3) rejected claims 1-3, 5-9, 19, 34-36, 38-42, 49, 67-69, 71-74, and 81 under 35 USC § 102(b) as being anticipated by Fallon et al. (U.S. 5,698,842); (4) rejected claims 1-9, 17, 34-42, 50, 67, 78, and 79 under 35 USC § 102(e) as being anticipated by Marriott et al. (U.S. 2003/0006048); (5) rejected claims 18, 51, and 80 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Heizmann-Bartels (U.S.-2003/0127558); (6) rejected claims 20-30 and 53-63 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Foote (U.S. 5,503,350); (7) rejected claims 16, 49, and 77 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Hutchinson (U.S. 4,891,029); (8) rejected claims 12-15, 45-48, and 76 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Rios (U.S. 6,694,228); and (9) rejected claims 31, 32, 64, and 65 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Margolin (U.S. 6,377,436). Applicant respectfully requests reconsideration and withdrawal of the rejections in view of the foregoing amendments and the following remarks.

BLACK LOWE & GRAHAM PLLC

701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

I. Rejection of claims 78-81 under 35 USC § 112, second paragraph, as being indefinite.

The Examiner rejected claims 78-81 as being indefinite since they depend from a base claim drawn to a method of positioning a vehicle at a particular aerial location but the claims in question do not claim aerial vehicles. Applicant has amended claims 78, 80, and 81 to depend from claim 72 which does not include the term "aerial" in its preamble, and has canceled claim 79 as being a duplicate of claim 78. Applicant submits that these amendments remedy the indefiniteness noted by the Examiner, and respectfully requests reconsideration and withdrawal of the rejections under 35 USC § 112, second paragraph.

II. Rejection of claims 1-11, 33-44, and 66-75 under 35 USC § 102(b) as being anticipated by McKown et al. (U.S. 3,912,197), Rampolla et al (U.S. 4,153,224), and Krammer et al. (U.S. 4,406,430).

The Examiner rejected claims 1-11, 33-44, and 66-75 under 35 USC § 102(b) as being anticipated by McKown et al., Rampolla et al., and Krammer et al.. Claims 1, 34, and 67 have been canceled, and the claims have been amended to depend from new independent claims 7, 40, and 72.

For example, amended claim 7 recites a control system for a remote-controlled vehicle, the system comprising an electromagnetic energy receiver configured to receive an electromagnetic beam and further configured to generate a control signal indicative of a position of the remote-controlled vehicle relative to a position of the electromagnetic beam, wherein the electromagnetic energy receiver includes an electromagnetic receiving array having a plurality of electromagnetic sensors, each of the electromagnetic sensors being configured to generate a sensor output indicative of an intensity of electromagnetic energy received by the electromagnetic sensor; a propulsion system; and a positioning control system configured to

BLACK LOWE & GRAHAM PLLC
701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

receive the control signal and maneuver the remote-controlled vehicle by directing the propulsion system in response the control signal, *wherein the positioning control system is configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam, and is further configured to approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array*. (emphasis added).

<u>McKown et al. (U.S. 3,912,197)</u>

McKown teaches a spinning, ballistically-projected ring airfoil projectile. As shown in Figure 1 of McKown, the RAP 12 includes sensors 24 and is fired from a gun tube 16. The projectile 12 surrounds an energy beam 22. When the projectile 12 begins to go off course, the sensors 24 detect the beam 22, and a control device 26 is activated to change the course of the projectile 12 until the sensors 24 no longer detect the beam 22. (2:48-3:54).

McKown does not disclose, teach, or fairly suggest the control system taught by Applicant. Specifically, McKown fails to teach or suggest a control system that includes wherein the electromagnetic energy receiver includes *an electromagnetic receiving array having a plurality of electromagnetic sensors, each of the electromagnetic sensors being configured to generate a sensor output indicative of an intensity of electromagnetic energy received by the electromagnetic sensor*, and a positioning control system *wherein the positioning control system is configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam, and is further configured to approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array*. (emphasis added).

BLACK LOWE & GRAHAM PLLC
701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

According to McKown, when the energy beam impinges on one of the sensors 24, the projectile 12 has wandered off course, and the control device 26 is activated to change the course of the projectile 12 until the sensors 24 no longer detect the beam 22. There is no teaching or suggestion in McKown of having *the positioning control system configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam,* or to *approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array.* McKown therefore does not anticipate claims 7, 40, and 72, and the claims depending therefrom.

Rampolla et al. (U.S. 4,153,224)

Rampolla teaches systems for establishing a reference direction in space and for causing a flight vehicle to follow the desired flight path. As shown in Rampolla's Figure 1, a synchronizing laser 20 transmits a first pulse to a flight vehicle 10, and then after a predetermined delay, a guiding laser 22 transmits a second pulse along a guide path Rg. Circuitry in the flight vehicle 10 is activated by the first pulse such that, after the predetermined delay, a detector 28 (Figure 3) in the flight vehicle 10 is activated and detects a backscatter from the second pulse from a desired direction of travel Vi of the flight vehicle. The detector 28 is coupled to a control system 31 that actuates control fins on the flight vehicle 10, causing the flight vehicle 10 to turn toward the backscatter from the second pulse and along the desired direction Vi, such as on a collision course with a target 14.

Rampolla does not remedy the above-noted absent teachings of McKown, and does not disclose, teach, or fairly suggest the control system taught by Applicant. Specifically, according to Rampolla, a synchronizing laser 20 transmits a first pulse to a flight vehicle 10, and then after a predetermined delay, a guiding laser 22 transmits a second pulse along a guide path Rg. There

is no teaching or suggestion in Rampolla of having *the positioning control system configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam,* or to *approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array.* Rampolla therefore does not anticipate claims 7, 40, and 72, and the claims depending therefrom.

Krammer et al. (U.S. 4,406,430)

Krammer teaches optically-based remote control systems for projectiles. According to Krammer, a light source emits a pulse-modulated, lamellar-shaped beam which periodically passes over a region containing a sighting line 3 between a firing base 1 and a target 2 (Figure 1). A projectile 6 on a trajectory 5 from the firing base 1 to the target 2 has a sensor that detects the periodically-scanned beam from the light source, demodulates the beam, and generates appropriate control signals to a control system to exert an influence over the trajectory of the projectile 6. (3:50-4:3).

Krammer does not remedy the above-noted absent teachings of McKown and Rampolla, and does not disclose, teach, or fairly suggest the control system taught by Applicant. Specifically, according to Krammer, a synchronizing laser 20 transmits a first pulse to a flight vehicle 10, and then after a predetermined delay, a guiding laser 22 transmits a second pulse along a guide path Rg. There is no teaching or suggestion in Krammer of having *the positioning control system configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam,* or to *approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a*

BLACK LOWE & GRAHAM PLLC

701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

predetermined portion of the electromagnetic receiving array. Rampolla therefore does not anticipate claims 7, 40, and 72, and the claims depending therefrom.

Amended claims 7, 40, and 72 each recite the above-noted limitations that are not taught or suggested by the cited references. Claims 1, 34, and 67 have been canceled, and the dependent claims have been amended to depend from new independent claims 7, 40, and 72. Therefore, claims 7, 40, and 72, as well as the claims depending therefrom, are allowable.

For the foregoing reasons, Applicant respectfully requests reconsideration and withdrawal of the rejections of claims 2-11, 33, 35-44, 66, and 68-75 under 35 USC § 102(b) as being anticipated by McKown et al., Rampolla et al., and Krammer et al..

III. Rejection of claims 1-3, 5-9, 19, 34-36, 38-42, 49, 67-69, 71-74, and 81 under 35 USC § 102(b) as being anticipated by Fallon et al. (U.S. 5,698,842).

The Examiner rejected claims 1-3, 5-9, 19, 34-36, 38-42, 49, 67-69, 71-74, and 81 under 35 USC § 102(b) as being anticipated by Fallon et al. (U.S. 5,698,842).

<u>Fallon et al. (U.S. 5,698,842)</u>

Fallon teaches sun sensors for use on orbiting, spin-stabilized satellites. As shown in Figure 1 of Fallon, a ray of sunlight passes through a window 12 and a slit aperture 6 before impinging on a linear silicon array 4. Fallon teaches that by positioned the slit 6 closer to the array 4 than had been previously practiced, a field of view of the sun is increased. (2:23-26). According to Fallon, as the satellite spins, the sunlight passing through the slit 6 periodically illuminates the array 4, which, in turn, generates an output signal in the form of a pulse train as shown in Figure 2. (3:44-49). By processing the output signal, an angular position of the sun with respect to the array may be determined. (4:4-4:12; 4:28-64).

Fallon does not disclose, teach, or fairly suggest the control system taught by Applicant. Specifically, Fallon fails to teach or suggest a control system that includes wherein the

BLACK LOWE & GRAHAM PLLC
701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

electromagnetic energy receiver includes *an electromagnetic receiving array having a plurality of electromagnetic sensors, each of the electromagnetic sensors being configured to generate a sensor output indicative of an intensity of electromagnetic energy received by the electromagnetic sensor*, and a positioning control system *wherein the positioning control system is configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam, and is further configured to approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array.* (emphasis added).

According to Fallon, as the satellite spins, the sunlight passing through the slit 6 periodically illuminates the array 4, generating an output signal in the form of a pulse train (3:44-49) such that by processing the output signal, an angular position of the sun with respect to the array may be determined (4:4-4:12; 4:28-64).. There is no teaching or suggestion in Fallon of having *the positioning control system configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam,* or to *approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array.* Fallon therefore does not anticipate claims 7, 40, and 72, and the claims depending therefrom.

Amended claims 7, 40, and 72 each recite the above-noted limitations that are not taught or suggested by Fallon. Claims 1, 34, and 67 have been canceled, and the dependent claims have been amended to depend from new independent claims 7, 40, and 72. Therefore, claims 7, 40, and 72, as well as the claims depending therefrom, are allowable.

BLACK LOWE & GRAHAM PLLC

701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

For the foregoing reasons, Applicant respectfully requests reconsideration and withdrawal of the rejections of claims 2-3, 5-9, 19, 35-36, 38-42, 49, 68-69, 71-74, and 81 under 35 USC § 102(b) as being anticipated by Fallon et al..

IV. Rejection of claims 1-9, 17, 34-42, 50, 67, 78, and 79 under 35 USC § 102(e) as being anticipated by Marriott et al. (U.S. 2003/0006048).

The Examiner rejected claims 1-9, 17, 34-42, 50, 67, 78, and 79 under 35 USC § 102(e) as being anticipated by Marriott et al. (U.S. 2003/0006048).

<u>Marriott et al. (U.S. 2003/0006048)</u>

Marriott teaches laser-guided earth-grading systems. According to Marriott, a 3D grading guidance system 63 (Figure 5) transmits radio signals to an optical adapter system 57 mounted on an earth-grading vehicle (Figure 2). (Paragraph 42). The optical adapter system 57 includes an energy source 58 that emits one or more energy beams onto a detection portion 56 of a receiver 53 of an implement control device 61. (Paragraph 38; Figure 5). The implement control device 61 responds to the energy beams and controls a vertical position of a grading implement 51, to automatically control the elevation change of the grading implement. (Paragraphs 38-40, 42).

Marriott does not disclose, teach, or fairly suggest the control system taught by Applicant. Specifically, Marriott fails to teach or suggest a control system that includes wherein the electromagnetic energy receiver includes *an electromagnetic receiving array having a plurality of electromagnetic sensors, each of the electromagnetic sensors being configured to generate a sensor output indicative of an intensity of electromagnetic energy received by the electromagnetic sensor*, and a positioning control system *wherein the positioning control system is configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam,*

and is further configured to approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array. (emphasis added).

According to Marriott, the energy source 58 emits one or more energy beams onto a detection portion 56 of a receiver 53 of an implement control device 61. (Paragraph 38; Figure 5). The implement control device 61 responds to the energy beams and controls a vertical position of a grading implement 51, to automatically control the elevation change of the grading implement. (Paragraphs 38-40, 42). There is no teaching or suggestion in Marriott of having *the positioning control system configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam,* or to *approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array.* Marriott therefore does not anticipate claims 7, 40, and 72, and the claims depending therefrom.

Amended claims 7, 40, and 72 each recite the above-noted limitations that are not taught or suggested by Marriott. Claims 1, 34, and 67 have been canceled, and the dependent claims have been amended to depend from new independent claims 7, 40, and 72. Therefore, claims 7, 40, and 72, as well as the claims depending therefrom, are allowable.

For the foregoing reasons, Applicant respectfully requests reconsideration and withdrawal of the rejections of claims 2-9, 17, 35-42, 50, and 78 under 35 USC § 102(e) as being anticipated by Marriott et al. (U.S. 2003/0006048).

BLACK LOWE & GRAHAM PLLC

701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

V. Rejections of claims under 35 USC § 103(a).

The Examiner rejected claims 18, 51, and 80 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Heizmann-Bartels (U.S. 2003/0127558); rejected claims 20-30 and 53-63 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Foote (U.S. 5,503,350); rejected claims 16, 49, and 77 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Hutchinson (U.S. 4,891,029); rejected claims 12-15, 45-48, and 76 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Rios (U.S. 6,694,228); and rejected claims 31, 32, 64, and 65 under 35 USC § 103(a) as being unpatentable over any one of McKown et al., Rampolla et al., and Krammer et al. in view of Margolin (U.S. 6,377,436).

Heizmann-Bartels (U.S. 2003/0127558)

Heizmann-Bartels teaches arranging detectors for detecting lasers on the surface of an under-water vehicle, and controlling the detectors by a laser warning receiver and signal processor. (Paragraphs 11-13).

Foote (U.S. 5,503,350)

Foote teaches a microwave-powered aircraft having a rectenna that receives microwave energy from a ground-based beaming antenna. According to Foote, "a tracking signal from the aircraft back down to the beaming antenna provides feedback to the ground control for focusing the antenna dish at the exact center of the rectenna." (5:10-13).

BLACK LOWE & GRAHAM PLLC

701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

Hutchinson (U.S. 4,891,029)

Hutchinson teaches a remote control lighter-than-air toy. Electric motors coupled to propellers are controlled by a radio signal from a control box.

Rios (U.S. 6,694,228)

Rios teaches control systems for remotely operated vehicles. According to Rios, a control system includes communications gear 42 for relaying sensor data and receiving input signals through an antenna 44. (3:60-65).

Margolin (U.S. 6,377,436)

Margolin teaches directed energy beam systems. According to Margolin, an ultra-fast laser system is moved in either a circular or rectangular fashion to produce a conductive shell which acts as a waveguide for microwave energy. The system can be used to provide power to an unmanned aerial vehicle.

Applicant respectfully submits that the additionally-cited references (Heizmann-Bartels, Foote, Hutchinson, Rios, and Margolin) do not remedy the above-noted absent teachings of the previously-described references (McKown, Rampolla, Krammer, Fallon, and Marriott), and do not disclose, teach, or fairly suggest the control systems taught by Applicant. Specifically, there is no teaching or suggestion in the additionally-cited references of having *the positioning control system configured to orient the remote-controlled vehicle such that the electromagnetic energy receiver is directed to substantially continuously receive the incoming electromagnetic beam,* or to *approximately equalize the sensor output of each of the electromagnetic sensors by maneuvering the remote-controlled vehicle such that the electromagnetic beam is received at a predetermined portion of the electromagnetic receiving array.* These additionally-cited references, either singly or in combination with the previously-described references, therefore do not anticipate or render obvious claims 7, 40, and 72, and the claims depending therefrom.

BLACK LOWE & GRAHAM PLLC

701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

For the foregoing reasons, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 USC § 103(a).

CONCLUSION

For the foregoing reasons, Applicant respectfully requests reconsideration and withdrawal of the rejections of claims 2-33, 35-66, 68-78, and 80-81. If there are any remaining matters that may be handled by telephone conference, the Examiner is kindly invited to call the undersigned at his convenience.

Respectfully submitted,

BLACK LOWE & GRAHAM[PLLC]

Dale C. Barr
Registration No.: 40,498
Direct Dial: 206.957.2463

MAIL CERTIFICATE

I hereby certify that this communication is being deposited with the United States Postal Service via first class mail under 37 C.F.R. § 1.08 on the date indicated below addressed to: MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

January 25, 2005
Date of Deposit

Wendy Saxby

BLACK LOWE & GRAHAM[PLLC]
701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301